Interview Summary	Application No.	Applicant(s)	
	08/942,369	CHEN ET AL.	
	Examin r	Art Unit	
	Marjorie A. Moran	1631	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Marjorie A. Moran*. (3) Dr. Chen

(2) *Richard San Pietro*. (4) Neil Gilbert

Date of Interview: *10 September 2002* .

Type: a)☐ Telephonic b)☐ Video Conference
c)☒ Personal [copy given to: 1)☐ applicant 2)☒ applicant's representative]

Exhibit shown or demonstration conducted: d)☒ Yes e)☐ No.
If Yes, brief description: Indicator (device)

Claim(s) discussed: 20 .

Identification of prior art discussed: THALLER, JOHNSON

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See below

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

i)☒ It is not necessary for applicant to provide a separate record of the substance of the interview(if box is checked).

Unless the paragraph above has been checked, THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Discussed meaning of "uropathogenic specific medium," ~~possible~~ discussed proposed response. Also discussed possible limitations to distinguish the claimed medium from that of the prior art.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

MA Moran
Examiner's signature, if required

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MESSAGE:

DRAFT FOR DISCUSSION PURPOSES ONLY.

U.S. Patent Application No. 08/942,369
Filed: October 2, 1997
Inventor(s): Chen, Chun-Ming et al.
For: Method and Apparatus for Concurrently Detecting Pathogenic Organisms and Antimicrobial Susceptibility

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Atty. Dkt. No. 051091-1001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Chen, Chun-Ming et al.

Title: METHOD AND APPARATUS FOR CONCURRENTLY DETECTING PATHOGENIC ORGANISMS AND ANTIMICROBIAL SUSCEPTIBILITY

Appl. No.: 08/942,369

Filing Date: October 2, 1997

Examiner: M. Moran

Art Unit: 1631

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231, on the date below.

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RESPONSE TO OFFICE ACTION

Commissioner for Patents
Washington, D.C. 20231

Sir:

This communication is responsive to the Office Action dated March 27, 2002, concerning the above-referenced patent application.

DRAFT - FOR DISCUSSION PURPOSES ONLY

THANK YOU

Atty. Dkt. No. 051091-1001

REMARKS

Applicant respectfully requests reconsideration of the present application in view of reasons which follow.

In a telephone call between the Examiner and the undersigned in July, the Examiner indicated her understanding that a high percentage of urinary tract infections (UTIs) are caused by *E. coli*. The Applicants wish to introduce references that will indicate the actual numbers of UTIs that are caused by *E. coli* and other primary gram negative uropathogens, with a view towards increasing understanding of the problems faced in arriving at the present invention. Thus, the references introduced below explain that E. coli was responsible for 60.8% over the three studies, which were conducted across varied geographical areas around the world. Therefore, a medium that detects only E. coli, and/or a small number of other uropathogens will not be a medium recited by the present claims. The present claims recite a uropathogen specific medium, which is a medium that allows for the growth of the group of bacteria that cause at least 85-90% of UTIs (specification, page 10, lines 19-26, page 12, lines 11-23).

Bonadio et al. (*Eur. Urol.* (2001) 40:439-445) report a study of UTI in 972 documented human patients with UTI in Italy. Organisms were isolated from the urine samples of each patient and identified. The primary gram negative uropathogens caused 862 (or 88.7%) of the 972 UTIs in this study.

Boukadida et al. (*Bacteriologie*) report on a study of UTI in Tunisia among 2,063 patients with UTI. In this study, the primary gram negative uropathogens caused 1,901 (or 92.0%) of the UTIs.

In a third study reported by Navaneeth et al. (*Tropical Doctor* (2002) 32: 20-22), conducted in Bangolore, India among 510 patients with UTI (Collee et al., "Tests for Identification of Bacteria," *Mackie and McCartney's Practical Medical Microbiology*, 13th ed., Vol. 2, Edinburgh, Churchill Livingstone, (1989) 141-160). 455 (or 88.7%) of the UTIs were found to have been caused by primary gram negative uropathogens.

The results of the three studies were combined and the total of 3,545 urine samples from patients with UTI across three distinct geographic areas were analyzed. 3,218 of the UTIs (90.8%) were found to be caused by primary gram negative uropathogens, summarized below.

	Study 1	Study 2	Study 3	Total #	%
E. coli	532	1383	242	2,157	60.8%
Klebsiella		236	53		
Enterobacter,	106[1]	62	17	478[1]	13.5%
Serratia		4			
Proteus	90	87	13	190	5.4%
Citrobacter	28	61	19	108	3.0
Pseudomonas	64	38	29	131	3.7
Acinetobacter	8	21		29	0.8%
Other G- rods	34			34	0.96%
Morganella		4		4	0.1%
Salmonella		3		3	0.1%
Providencia		2	36	38	1.1%
NFRs[2]			46	46	1.3%
Totals	862	1,901	455	3,218	90.8%

[1]Study 1 examined "KES," *Klebsiella*, *Enterobacter*, and *Serratia* as one group. This number is therefore combined across the three species to yield 106. Similarly, the total of 478 is a combined number of the three species across the three studies.

[2]NFRs are non-fermenting gram-negative *Bacilli* other than *Pseudomonas*.

A blank entry means the study did not examine that species.

In the Office Action dated March 27, 2002, the Examiner maintained a rejection of claims 20-24 for obviousness under 35 U.S.C. 103, over Johnson, Libman, and Thaller.

In order to arrive at a uropathogen specific medium as presently claimed, it is necessary to arrive at a medium that is able to detect the group of organisms responsible for at least 85-90% of human and veterinary urinary tract infections (specification, page 10, lines 19-26, page 12, lines 11-23). It is further noted that in the study by Navaneeth et al. and the study by Bonadio, the urine samples were plated on MacConkey agar for isolation, and then analyzed according to standard biochemical tests, followed by antibiotic susceptibility testing. The "standard biochemical tests" are necessary to identify the organisms as primary gram negative uropathogens because MacConkey agar is simply an isolation medium. Bonadio and Navaneeth perform antibiotic susceptibility testing as an additional step, which is required under the prior art to ascertain the susceptibility of the organisms to particular antibiotics. The present invention eliminates these last two steps and incorporates the detection of uropathogens and susceptibility testing into a single test. Media with the selective power of the present media are necessary to accomplish this. It is also necessary that antimicrobial agents be incorporated into the media without compromising the selectivity of the media. The uropathogenic media of the present invention have these qualities and therefore are able to combine the three steps into one step, thus resulting in a substantial savings in time and enabling effective therapy for treating UTI to begin at an earlier date, which is a very valuable advantage for both human and animal patients.

In the Declaration of Chen submitted November 15, 2001, Dr. Chen described an experiment using MacConkey agar and 4-MU as an indicator, because the Examiner had found that this combination rendered the presently claimed invention obvious. Dr. Chen therefore conducted the experiment and found that the combination asserted by the Examiner yields a medium with a very high level of false negative results and does not result in a useful medium, and therefore does not render obvious any present claim.

The Office Action dated March 27, 2002 speculates that the false negative results may have been due to "poor fluorescence" (Office Action, p. 2, line 21). It is respectfully submitted that the present rejection is improperly made because it does not specify a combination of media and indicators taught by the prior art that will allegedly render the present claims obvious. In order to render the claims obvious, the prior art must teach all of the elements of the present claims, provide a motivation to make any combinations, and teach a reasonable expectation of success in arriving at the claimed invention (MPEP 2142). The specific combination of medium and indicator, and any other ingredients that are believed the prior art teaches as necessary has not been made. However, if the Examiner believes otherwise, it is respectfully requested that the rejection be clarified by indicating a specific combination believed taught by the art.

The Examiner introduces the Thaller reference in the Office Action mailed March 27, 2002. Thaller describes the media as a medium for "presumptive identification." Thus, the medium of Thaller is another medium of the prior art that is appropriate only for isolation, and is unable to identify urine containing UTI organisms. This is clear from the passage at page 791, right column, lines 3-15 of Thaller, which describes biochemical tests performed on colonies that grew on the medium to determine their identity. Confirmation testing was also performed on the colonies and the medium is compared to MacConkey agar. Thaller states that "Both the colony counts and sizes of the tested gram-negative strains showed no significative [sic] differences on T-mod and MacConkey media." (page 791, right column). Furthermore, Thaller completely fails to teach or suggest any manner of incorporating an indicator in the medium without changing the

selectivity of the medium, and completely fails to teach a method of simultaneously testing the antimicrobial susceptibility of the organisms.

The uropathogen specific medium recited in the claims is not met by MacConkey agar nor by the T-mod medium of Thaller. The Declaration of Dr. Chen explained that MacConkey agar yields a very high level of false negative results and does not have the qualities of the presently claimed medium, which is illustrated in one embodiment at page 19 of the specification. Thus, neither of the references nor any combination teach or suggest how to create a uropathogen specific medium recited in the present claims. Because neither Libman nor Thaller provide a uropathogen specific medium as recited in the claims, and no teaching or suggestion is present in either reference regarding how to arrive at such a medium, the presently claimed invention is not rendered obvious. Furthermore, no motivation is provided to combine any medium of Libman or Thaller with the device of Johnson, nor does any reference provide a teaching or suggestion regarding how to simultaneously perform antimicrobial susceptibility testing on the samples. Finally, adding Brocco to the combination does not cure the deficiencies noted. Brocco does not disclose any selective medium and requires the use of sterile devices and media.

Reconsideration and withdrawal of the rejection is respectfully requested. Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Atty. Dkt. No. 051091-1001

Respectfully submitted,

DRAFT

Date _____ By _____

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Pending Claims

20. A method of detecting the presence of urinary pathogens in a biological sample and of simultaneously determining the susceptibility of the urinary pathogens to antimicrobial agents, said method comprising:

providing a multicompartment assay device comprising:

at least one compartment comprising a medium capable of sustaining growth of total microbial organisms; at least one compartment comprising a uropathogenic specific medium; and, at least one compartment comprising an antimicrobial susceptibility interpretation medium;

placing a portion of the biological sample respectively in said at least one compartment comprising a medium capable of sustaining growth of total microbial organisms; said at least one compartment comprising a uropathogenic specific medium; and, said at least one compartment comprising an antimicrobial susceptibility interpretation medium comprising an antimicrobial agent;

whereby growth of organisms in said at least one compartment comprising a medium capable of sustaining growth of total microbial organisms indicates the presence of microbial organisms in the sample; growth of organisms in said at least one compartment comprising a uropathogenic specific medium indicates the presence of urinary pathogens in the sample; and growth of organisms in said at least one compartment comprising an antimicrobial susceptibility interpretation medium indicates that the organisms lack susceptibility to the antimicrobial agent comprised in said antimicrobial susceptibility interpretation medium; and

examining the compartments to determine the presence of urinary pathogens in said biological sample and the susceptibility of said urinary pathogens to said antimicrobial agents.

21. The method of claim 20, wherein the biological fluid is urine.

22. The method of claim 21, wherein the urinary pathogens are primary gram negative urinary pathogens.

23. The method of claim 22 wherein the primary gram negative urinary pathogens comprise *Enterobacteriacae*.

24. The method of claim 22 wherein the primary gram negative urinary pathogens are selected from the group consisting of: *Escherichia coli, Klebsiella spp., Enterobacter spp., Proteus mirabilis, Proteus vulgaris, Morganella morganii, Providencia retteri,* and *Acinetobacter spp*.

26. The method of claim 20 wherein the at least one antimicrobial susceptibility interpretation medium comprises amoxicillin, clavulanic acid/amoxicillin, or enrofloxacin.